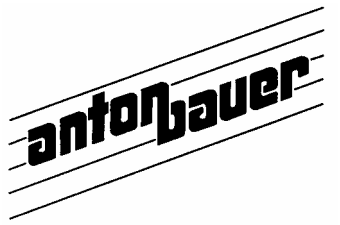

LOGIC SERIES

DIGITAL BATTERY SYSTEM

Digital ProPac 14
Digital Trimpac 14

OWNER'S MANUAL

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IMPORTANT

The Logic Series DIGITAL battery has been specifically designed to be charged with the Anton/Bauer Logic Series InterActive Chargers ONLY (any InterActive 2000 PowerCharger, MP-4D, Quad, Dual, MP-2, Q2, ABC-800H or CPS-2). These Chargers were developed in anticipation of the DIGITAL battery and include the proper DIGITAL interface circuitry.

Since all programming is contained on one single EPROM chip, earlier Logic Series Charger models already in the field may not contain the latest DIGITAL software. The DIGITAL batteries will simply require a new EPROM chip to set up complete communication.

Replacement EPROM chips are available by contacting the Anton/Bauer Customer Support Group at 1-800-541-1667 or 203-929-1100 or fax 203-929-9935.

THE DIGITAL BATTERY CAN NOT BE USED WITH STANDARD ANTON/BAUER LIFESAVER CHARGERS (LSQ4, LSFC, LSQC, etc.) OR NON-ANTON/BAUER CHARGERS. Call the Anton/Bauer Customer Support Group if there is any question of charger compatibility.

INTRODUCTION

The Logic Series Digital Battery System couples the most advanced NiCad battery and charging technology with the first and only capacity measurement system in the industry.

The Anton/Bauer DIGITAL battery uses InterActive Logic Series technology which includes sensors, a microprocessor controller and data circuits in the battery to communicate with an Anton/Bauer charger *as well as* video cameras for precise and dependable performance. The microprocessor actually allows the battery to learn its capacity as it is used, constantly updating the status of the fuel gauge. This unique "self-calibrating" or "learning" function is only available with Anton/Bauer batteries.

When used in conjunction with the Anton/Bauer InterActive 2000 PowerChargers, the LCD on the charger provides a "window" into the battery - displaying all the critical battery information and status essential for maintaining peak performance of any type of video field equipment.

FEATURES

1. **Microprocessor Fuel Computer** - Accurately monitors the energy put into and taken out of the battery. This data is processed with sophisticated programs that take into account battery age, self discharge, charge/discharge rate, cell imbalance and previously experienced charge/discharge cycles. The DIGITAL battery constantly "learns" its precise state of charge and remaining capacity. This data is automatically transmitted to an InterActive charger.
2. **Integral 'LCD'** - Accurately displays the percentage of remaining battery capacity.

3. **Viewfinder Fuel Gauge Display** - The DIGITAL battery was developed in cooperation with all the major equipment manufacturers including Sony, Ikegami, Panasonic, JVC, BTS, and Hitachi. Cameras and camcorders are now available that feature Anton/Bauer compatible InterActive systems that connect with the DIGITAL battery "Fuel Computer" and display an accurate "Fuel Gauge" of remaining battery capacity in the viewfinder.

4. **Battery Management Data** - The built-in two level LCD in the Logic Series Lifesaver PowerChargers, MP-4D or MP-2 chargers provides access to vital performance and historical data such as: present available battery capacity, calibrated battery capacity, battery serial number, date of manufacture and number of charge/discharge cycles. This data, which is vital to creating an effective battery management and maintenance program, can also be automatically accessed with a printer.

5. **Premium Fast Charge Cells** - Unlike conventional cells that are stressed or damaged by fast charging, these cells are designed specifically for optimum life and performance.

6. **High Voltage Design** - The 14.4 volt design of the Logic Series DIGITAL battery complies precisely with equipment manufacturers' specifications, eliminating all the problems that cripple 12 volt batteries.

7. **Impac Case design** - The computer designed high impact case eliminates conventional stress points. A proprietary internal rib system cradles each individual cell. These features protect the cells from impact that would damage or destroy conventional batteries.

8. **Gold Mount Interface** - The solid metal "H" design mounting studs assure a smooth, precise mounting for the life of the battery. The Logic Series connector assembly features multiple gold plated, self aligning contacts and is compatible with all existing Anton/Bauer camera mounts and accessories.

9. **Individual Computer Testing** - Like all professional Anton/Bauer batteries, the Logic Series DIGITAL battery has been individually computer tested. For assurance of optimum capacity, voltage and overall quality, a computer print-out is enclosed.

HIGH VOLTAGE DESIGN

Virtually all cameras/camcorders will indicate a low voltage warning or cease to operate at about 11 volts. Unfortunately, a 12 volt battery must be discharged to 10 volts for full discharge. Thus, a camera/camcorder operating on a 12 volt NiCad will always cease to operate before fully discharging the battery, leaving 50% of the total capacity unused under certain conditions. The amount of this wasted capacity can vary each day depending on temperature, etc., thus creating what appears to be totally inconsistent performance.

The Logic Series DIGITAL battery, like all professional Anton/Bauer camera batteries, are designed in a 14.4 volt configuration with full discharge rating of 12 volts. Thus, the Logic Series DIGITAL battery will always deliver 100% capacity before the equipment ever reaches its cutoff point. Moreover, this dependability is not effected by temperature, memory, age or any of the other factors that can cripple a 12 volt battery.

APPLICATIONS

Virtually all cameras, camcorders, and other video field equipment specifies a maximum voltage of 18 volts. The 14.4 volt DIGITAL battery will provide superior performance and greater run time on that equipment. **CAUTION: Certain older equipment is not designed to accept 14.4 volt NiCad batteries. The 14.4 volt DIGITAL battery could damage such equipment. Check with the equipment manufacturer or the Anton/Bauer Customer Support Group prior to using a 14.4 volt battery.**

DIGITAL PROPAC

The Digital ProPac battery is the ideal source for all cameras and camcorders. With an accessory Gold Mount Bracket, it can be used to power color monitors, waveform monitors, vector scopes and virtually any other video equipment designed to be operated from 12 volt DC power.

The Digital ProPac battery is also the preferred power source when using the Anton/Bauer Ultralight or Ultralight 2 "on-camera" accessory light. The Gold Mount Bracket features an integral "PowerTap" receptacle that can power the Ultralight directly from the DIGITAL battery powering the camera or camcorder.

DIGITAL TRIMPAC

The lightweight high energy Digital Trimpac battery is the ideal match for the latest generation of smaller CCD cameras and camcorders. The Digital Trimpac will provide excellent run times in applications previously using slide-in type batteries. Run time improvements to 100% are quite common with the Digital Trimpac.

HIGH RATE DISCHARGE

For a given size and battery type, higher discharge currents will reduce overall life expectancy while lower discharge currents will enhance overall battery life. The DIGITAL battery incorporates a unique feature that will flash the "LCD" display when a high rate discharge current (equipment load) is applied to the battery.

The LCD indicator will resume normal operation when the high rate discharge current is either reduced below the rating or completely removed.

Particular caution should be used if the battery is powering a portable light. At the very first signs of the light dimming or turning orange, the power must first be turned off and the battery replaced. Never continue to use a DIGITAL battery after the "Flashing 15 minute segment" flag has appeared.

DIGITAL PROPAC

All lit segments of the Digital ProPac will flash when a discharge current (load) **greater than 8 amps/115 watts** is applied.

DIGITAL TRIMPAC

All lit segments of the Digital Trimpac will flash when a discharge current (load) **greater than 5 amps/80 watts** is applied.

CHARGING WITH LOGIC SERIES CHARGERS

Charge this battery fully before using. Allow the battery to reach a steady green (Lifesaver) mode before using. Charging is automatic on all Logic Series chargers. The flashing red and green lights indicate the charger and battery are establishing communications. The following are the standard indications on any Logic Series Lifesaver Charger (Please refer to the Charger manual for complete Charger instructions):

- Alternating red and green: Evaluating battery and/or rejuvenating low voltage battery.
- Steady red: Battery waiting to charge (may either be in line to charge or holding for temperature stabilization).
- Flashing red: Charging.
- Flashing green: Balancing mode or Ready/Verifying. Battery is typically more the 80% charged.
- Steady green: Lifesaver mode. Batteries will remain 100% ready for use indefinitely.

The battery should remain on the charger until just prior to being used. The patented Lifesaver maintenance routine keeps the battery 100% charged and balanced by eliminating the typical self-discharge that can cripple a battery that is stored for any length of time on the shelf. Do not remove the DIGITAL batteries from the charger more than 8 hours prior to actual use. For best results, this battery should be returned to the Logic Series charger within 48 hours of being used. Please read the individual charger Owner's Manual to become acquainted with the many unique features of the Logic Series chargers.

OVER-DISCHARGED BATTERIES

An "over-discharged" voltage state is caused by leaving a battery operated device unattended and allowing the battery to drain beyond the low voltage warning point of the equipment and/or the "Flashing 15 minute segment" indication on the LCD of the DIGITAL battery.

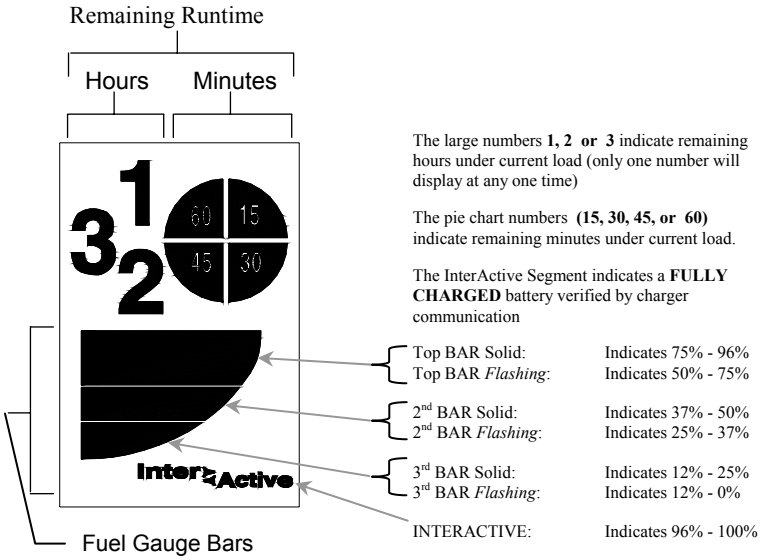
Low voltage over-discharged batteries can also be caused by allowing batteries to remain off the charger for extended periods. Returning batteries to the Logic Series Lifesaver Charger as soon as possible after use, and leaving batteries in the Lifesaver mode until just prior to using will avoid this type of over-discharge condition.

A battery that has been inadvertently allowed to become over-discharged will automatically trigger a special rejuvenation routine contained in all Anton/Bauer Logic Series Chargers. In such cases the red/green alternating LED's, on the charger, indicate that the automatic rejuvenation cycle is bringing the battery back up to a safe charging voltage. When the Logic Series Charger verifies there are no thermal violations, it will begin a complete charge cycle (Red flashing LED).

In the extreme case that a battery is over-discharged, the rejuvenation charge routine will not be initiated by the charger until all other batteries have completed their fast charge routines. Therefore, an extremely over-discharged battery can be installed on a Logic Series Charger without the charger indicating recognition.

LIQUID CRYSTAL DISPLAY (LCD)

The "RealTime" LCD display provides on-the-fly remaining run time estimates in 15 minute increments as well as *simultaneously* providing remaining capacity information using the traditional "Fuel Gauge" approach. No special adapters or set up is required. RealTime *automatically calculates the load and displays capacity information and battery status at all times.*



If the INTERACTIVE segment flashes, this indicates the battery has requested to be fully charged and discharged in order to update its "learned capacity". This "learning" or "calibration" should typically occur during normal equipment operation. However, if the battery has not been fully charged and discharged for some time, this indication will appear.

To remove the flashing INTERACTIVE segment, fully charge the battery (STEADY GREEN indication) on the InterActive 2000 charger. Then either:

(a) Discharge the battery on a camera in normal operation continuing to keep the camera "hot" until it shuts down. Then return the battery to the charger. When the battery is full remove it from the charger.

(b) This can be done automatically with an InterActive2000 PowerCharger with a DDM (Diagnostic Discharge Module installed. This unique feature is called "AUTOCAL" and is included as standard on the DUAL 2702 and QUAD 2702 PowerChargers. (Please reference the appropriate PowerCharger Owner's Manual.)

IMPORTANT NOTE: The flashing INTERACTIVE segment indication is not a warning indication. The battery will operate perfectly normal while awaiting a "learning" cycle. Rather than relying on an "assumed" capacity, as with some imitation fuel gauges, the battery relies on the Digital Battery electronics to update capacity information as the battery sees different operating conditions and ages normally. The flashing INTERACTIVE segment is merely an indication that the battery has not updated this information for some time and is requesting a confirmation of its "learned" capacity.

RealTime Display Indications

- When the battery is being charged no remaining runtime is displayed.
- Remaining run time is calculated using the present available battery capacity and a constantly updated accurate measurement of the present load on the battery.
- If no load is detected, or if the battery is removed from the charger before any discharge load is applied, the default assumed power for remaining run time calculations is 20 Watts.
- When the battery determines that a load is attached, remaining run time will be calculated based on that load and the time remaining will be updated.
- The battery will "learn" this new load and retain that load information in non-volatile memory. If the battery is removed from the camera it will retain this information for 30 minutes or until it is returned to the charger or sees a new load. After 30 minutes the battery will return to the default load of 20 watts.
- **OVERCURRENT INDICATION**

  If the battery is subjected to a load that exceeds specifications all status icons on the LCD will flash at a once per second rate. When the over-load condition is removed, the display will return to normal.
- When the battery is completely discharged the LCD will flash the 15 minute icon until the battery is returned to a charger.

PREVENTATIVE MAINTENANCE

The DIGITAL battery incorporates unique battery management features. Together with Anton/Bauer diagnostic accessories, an effective preventative maintenance program can easily be created to optimize the return on battery investment and greatly simplify battery management operations.

The PowerCharger, coupled with a DDM (Diagnostic Discharge Module), will provide a complete battery management system. The PowerCharger will allow you to run diagnostic evaluations as well as "Calibrate" your battery with the new "AUTOCAL" feature. The "AUTOCAL" feature will automatically "Calibrate" your battery without any operator input. Please reference the PowerCharger Owner's Manual for additional information.

The older style MP4-D, coupled with a DM-4, will allow you to run similar diagnostic programs as a PowerCharger.

It is strongly recommended that all users of the Logic Series DIGITAL Battery System have at least one PowerCharger complete with a DDM, or MP4-D/DM-4 combination. Such a combination can also interface via the RS-232 port provided to a printer producing hard copy battery reports automatically, including battery serial number, date of manufacture, number of charge/discharge cycles, calibrated capacity, and a complete voltage/time discharge graph.

Logic Series DIGITAL batteries and Chargers together form a battery management system that will maximize battery performance, eliminate battery problems in the field and reduce costs by prolonging battery life and precluding equipment down time.

GUIDELINES FOR OPTIMUM PERFORMANCE AND MAXIMUM LIFE

1. Keep batteries cool or at room temperatures whenever possible. Sustained elevated temperatures are the primary reason for premature failure of NiCad batteries:

    a. Charging - Charge batteries at room temperature. In warm climates keep chargers in air conditioned rooms that are maintained between 65°F to 85°F for best performance.

    b. On assignment - Do not leave batteries in a hot vehicle trunk or out in direct sunlight unnecessarily.

    c. Storage - If batteries are not going to be used for several months, they should be fully discharged, sealed in a plastic bag and stored in a refrigerator or freezer.

2. Use only Anton/Bauer Logic Series Lifesaver Chargers and keep batteries on the charger until just prior to being used.

3. Return batteries to the Logic Series Charger as soon as possible after use, preferably within 24 hours.

4. **Do not over-discharge batteries** - It is quite proper to discharge a battery until a low voltage warning in the camera or VTR is observed. However, a switch to a fresh battery should occur as soon as possible following such indication.

    a. A DIGITAL battery should be changed as soon as possible after a "Flashing 15 minute segment" is indicated. **Never** continue to use a DIGITAL battery after the “Flashing 15 minute segment**”** has appeared.

    b. Never leave a battery operated device unattended while it is running.

5. Discharging the battery for diagnostic purposes should only be performed on an occasional basis (once every 6-8 weeks at most). Unnecessary discharging only detracts from overall life.

6. Periodic cleaning of both the charger terminals and battery terminals will ensure continued reliable operation. Dirty terminals may cause the battery to indicate a steady red ("Hold") mode on the charger.

Cleaning the terminals with a pencil eraser or lightly scraping the surface with a blunt instrument will help reduce this situation.

Anton/Bauer publishes a comprehensive "Video Battery Handbook" to help you further maximize the life and performance of your new DIGITAL battery. This guide is available at no charge by contacting Anton/Bauer at 1-800-422-3473 or 203-929-1100 or fax 203-929-9935.

SERVICE

In the unlikely event a DIGITAL battery fails to deliver acceptable performance, it must be returned to the Anton/Bauer Service Department, the only facility qualified and equipped to service the Logic Series DIGITAL batteries and calibrate the electronic components and sensors. Any attempt by the user or any other unauthorized persons to service this battery will surely result in improper calibration of the electronic components resulting in severe battery damage and/or safety hazards to the operator, in addition to voiding any/all remaining unconditional or pro-rated warranty conditions. Therefore:

1. **DO NOT** attempt to service this battery under any circumstances.
2. **DO NOT** send this battery for service to anyone other than the Anton/Bauer Service Department.
3. **DO NOT** rebuild this battery - At the end of its useful life contact the Anton/Bauer Service Department.
4. **DO NOT DISPOSE OF THIS BATTERY.** This battery contains sealed Nickel-Cadmium cells and must be disposed of properly. Anton/Bauer participates in a recycle program that handles Nickel-Cadmium battery products (see the back page of this manual).

SPECIFICATIONS

	DIGITAL PROPAC 14	DIGITAL TRIMPAC
OUTPUT VOLTAGE	14.4v Nominal 12 ~ 16.8v Operating	14.4v Nominal 12 ~ 16.8v Operating
CAPACITY (CELL CAPACITY)	65 WH Nominal (4 AH Rated)	45 WH Nominal (2.5 AH Rated)
TYPICAL RUN-TIME	@ 15w - 4 Hrs. @ 20w - 3 Hrs. @ 30w - 2 Hrs.	@ 10w - 4 Hrs. @ 13w - 3 Hrs. @ 20w - 2 Hrs.
WEIGHT	5.25 lbs.	2.75 lbs.

Replacement fuses for the Digital ProPac are valued at 12.5 amps/125 volts.

LIMITED WARRANTY
Logic Series DIGITAL Battery

IMPORTANT: WARRANTY REGISTRATION CARD MUST BE MAILED WITHIN 10 DAYS OF PURCHASE TO QUALIFY FOR THIS WARRANTY. Proper registration will also enable us to send you important update information.

This new Anton/Bauer Logic Series DIGITAL battery has been 100% tested prior to shipment and is warranted against defects in materials and workmanship for a period of three years from date of purchase when this battery is used in conjunction with Anton/Bauer Logic Series Lifesaver Chargers. If the battery is found to be defective or fails to meet minimum* capacity specifications, the following will apply:

0-36 MONTHS - Anton/Bauer will repair or replace the product at Anton/Bauer's option - FREE OF CHARGE.

WARRANTY REGISTRATION, INCLUDING SERIAL NUMBERS OF LOGIC SERIES LIFESAVER CHARGERS, MUST BE ON FILE AT ANTON/BAUER TO QUALIFY FOR THIS 36 MONTH WARRANTY.

This warranty does not cover damage resulting from accident, misuse or abuse, neglect, improper service or maintenance. Use of unauthorized service, replacement parts or attachments will void this warranty. Misuse includes any use of this product in other than its intended applications.

No responsibility is assumed for any special, incidental or consequential damages. No other Warranty, written, oral or implied is assumed or authorized by Anton/Bauer. The liability of Anton/Bauer hereunder is expressly limited to a claim for a repair or replacement for the goods sold or as otherwise stated herein.

This Warranty is to be construed and enforced in accordance with the law of the State of Connecticut, including the provisions of the Uniform Commercial Code as adopted and from time to time amended in the State of Connecticut, and not the Convention for the International Sale of Goods. This choice of Connecticut law is exclusive of any Connecticut law that would require reliance on any law foreign to Connecticut. Should any action of law or in equity be brought by any person under this Warranty, such action shall be brought only in the United States District Court for the District of Connecticut, or in any Superior Court in Fairfield County, Connecticut, U.S.A.

*Performance is warranted at a minimum of 70% of rated capacity.

If you have any questions regarding applications or specifications, or to obtain warranty service on this or any Anton/Bauer product, contact the Anton/Bauer Customer Support Group. See back page for contact information.